

## CLAIMS

What is claimed is:

1. An object-oriented system for one of relating network elements to a customer and relating a customer to the network elements, the system comprising:

5 a network element data module containing network element data arranged in a form that can be manipulated using an object-oriented application;

a customer data module; and

10 a mapping module in communication with the network element data module and the customer data module for creating an object-oriented model of the network elements, wherein the output of the mapping module comprises:

a plurality of sub-tree layers, wherein each layer represents a layer of abstraction, wherein a root represents the highest sub-tree layer and the highest level of abstraction; and

15 a plurality of unique customer identifiers assigned to network elements that relate the customer to certain network elements.

2. The system of claim 1, wherein the network element data module and the customer data module are a network management system in communication with the mapping module.

20 3. The system of claim 1, wherein the mapping module is configured to assign the unique customer identifier to the network element at a lowest abstraction layer.

4. The system of claim 1, wherein the mapping module is configured to assign the unique customer identifier to the network element at a second lowest abstraction layer when all of the network elements in the lowest abstraction layer provide service to the same customer.

5. The system of claim 1, wherein the output of the mapping module further comprises:

a service management sub-tree layer wherein each supported service has a set of instances corresponding to the network elements that provide the service.

6. The system of claim 1, wherein the unique identifier comprises a predetermined character string, and wherein each string having a series of substrings, and wherein each substring corresponds to a network element having a relationship with the customer.

7. An object-oriented system for one of relating network elements to a customer and relating a customer to the network elements, the system comprising:

a network element data module containing network element data arranged in a form that can be manipulated using an object-oriented application;

a customer data module; and

a mapping module in communication with the network element data module and the customer data module, wherein the mapping module comprises:

means for creating an object-oriented model of the network elements comprising

a plurality of sub-tree layers, wherein each layer represents a layer of abstraction,

wherein a root represents the highest sub-tree layer and the highest level of abstraction;  
and

means for assigning unique customer identifiers to network elements that relate  
the customer to certain network elements.

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8. The system of claim 7, wherein the mapping module includes:

means for assigning the unique customer identifier to the network element at a lowest  
abstraction layer.

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9. The system of claim 7, wherein the mapping module includes:

means for assigning the unique customer identifier to the network element at a second  
lowest abstraction layer when all of the network elements in the lowest abstraction layer provide  
service to the same customer.

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10. The system of claim 7, wherein the mapping module further comprises:

means for creating a service management sub-tree layer, wherein each supported service  
has a set of instances corresponding to the network elements that provide the service.

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11. The system of claim 7, wherein the mapping module further comprises:

means for a creating a unique customer identifier that indicates the relationship between a  
plurality of network elements and the customer.

12. A method for one of relating network elements to a customer and relating a customer to the network elements, the steps comprising:

gathering network element data;

arranging the network element data in a form that can be manipulated using an object-

oriented application;

gathering customer data;

creating an object-oriented model of the network elements, wherein the model includes a plurality of sub-tree layers, wherein each layer represents a layer of abstraction, and wherein a root represents the highest sub-tree layer and the highest level of abstraction; and

assigning a unique customer identifier to a network element for identifying the customer associated with that network element.

13. The method of claim 12, further comprising the step of:

relating a customer to a service when a network element may provide multiple services.

14. The method of claim 12 further comprising the step of:

updating the relationships between the network elements in accordance with the gathering steps.

15. The method of claim 12 further comprising the step of:

updating the relationships between the network elements and the customer identifiers in accordance with the assigning step.

16. An object-oriented system for one of relating network elements to a customer and relating a customer to the network elements, the system comprising:

means for gathering network element data;

means for arranging the network element data in a form that can be manipulated using an

5 object-oriented application;

means for gathering customer data;

means for creating an object-oriented model of the network elements, wherein the model includes a plurality of sub-tree layers, wherein each layer represents a layer of abstraction, and wherein a root represents the highest sub-tree layer and the highest level of abstraction; and

10 means for assigning a unique customer identifier to a network element for identifying the customer associated with that network element.

17. The system of claim 16, further comprising:

15 means for relating a customer to a service when a network element may provide multiple services.

18. The system of claim 16, further comprising:

means for updating the relationships between the network elements in accordance with the gathering steps.

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19. The system of claim 16, further comprising:

means for updating the relationships between the network elements and the customer identifiers in accordance with the assigning step.

20. A computer-readable medium having stored thereon instructions which, when executed by a processor, cause the processor to perform the steps of:

gathering network element data;

5 arranging the network element data in a form that can be manipulated using an object-oriented application;

gathering customer data;

creating an object-oriented model of the network elements, wherein the model includes a plurality of sub-tree layers, wherein each layer represents a layer of abstraction, and wherein a root represents the highest sub-tree layer and the highest level of abstraction; and

10 assigning a unique customer identifier to a network element for identifying the customer associated with that network element.

21. The medium of claim 20, having stored thereon instructions which, when executed by the processor, cause the processor to perform the further step of:

relating a customer to a service when a network element may provide multiple services.

22. The medium of claim, having stored thereon instructions which, when executed by the processor, cause the processor to perform the further step of:

20 updating the relationships between the network elements in accordance with the gathering steps.

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23. The medium of claim 20, having stored thereon instructions which, when executed by the processor, cause the processor to perform the further step of:

updating the relationships between the network elements and the customer identifiers in accordance with the assigning step.

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